

**CLAIMS:**

1. A process for generating an authenticable document, wherein an authentication image inserted therein is not readily visually perceptible, including:

generating a first halftone screen;

generating a second halftone screen, related and distinct from the first halftone screen, wherein the macro structure of the second halftone screen is identical to that of the first halftone screen and the micro structure of the second halftone screen is conjugate to that of the first halftone screen

generating a first user image using the first halftone screen and the second halftone screen, wherein a region is generated using the first halftone screen and a remaining region is generated using the second halftone screen;

generating a second user image using the first halftone screen whereby upon placing the first and second user images in a superposed relationship to allow viewing of both user images together, a positive correlation occurs between the two user images within the regions in which the first halftone screen is used in the first user image, and a negative correlation occurs between the two user images within the regions in which the second halftone screen is used in the first user image, so that the authentication image becomes visible in contrast between the positive correlation of the corresponding regions and the negative correlation of the remaining regions enabling authentication of the authenticable document; and

a negative correlation occurs between the two halftone screens in the first and second user images everywhere within the region in which the second halftone screen is a conjugate of the corresponding region of the first halftone screen, and where a positive correlation occurs where the two screens are identical, so that the authentication image becomes visible in contrast between the positive correlation of the corresponding regions and the negative correlation of the remaining regions enabling authentication of the authenticable document.

2. The process as described in claim 1, wherein the authenticable document is a color document comprising plural color separations, and the first and second patterns are used together in one of the plural color separations in the first user image, and the first pattern is used in one of the plurality of color separations in the second user image.

3. The process as described in claim 1, wherein the first and second images are digital images and wherein the step of placing the first and second images in a superposed relationship is accomplished by digital processing of the first and second images.

4. The process as described in claim 1, wherein both the first and second images are rendered on substrates and at least one of the first and second images is rendered on a substantially transparent substrate and wherein the step of placing the first and second images in a superposed relationship is accomplished by placing the transparent substrate over the other substrate in an aligned relationship.

5. The process of claim 1, wherein the steps of generating a user image comprise:

applying a respective screen to an input image to produce a halftoned output image;

rendering the halftoned output image in a human viewable form; and

scanning the rendered image to produce a respective user image as a digitized representation of the rendered image.

6. A process for generating an authenticable document, wherein an authentication image inserted therein is not readily visually perceptible, including the steps of:

generating a first halftone screen;

generating a first image using the first halftone screen;

generating a second halftone screen, related and distinct from the first halftone screen to form the authentication image wherein a region of the second halftone screen is substantially a conjugate of a corresponding region of the first halftone screen and the remaining region of the second halftone screen is identical to the remaining region of the first halftone screen;

generating a second user image using the second halftone screen;

superposing the first and second images to enable the detection of a negative correlation between the halftone screens in the first and second user images everywhere within the corresponding regions where the second halftone screen is a conjugate of the first halftone screen and positive correlation between the halftone screens in the remaining regions where the second halftone screen is identical to the first halftone screen, the authentication image placed therein becoming detectable in contrast between the negative correlation and the positive correlation to allow authentication of the authenticable document.

7. The process as described in claim 6, wherein the authenticable document is a color document comprising plural color separations, and the first and second patterns are used together in one of the plural color separations in the first user image, and the first pattern is used in one of the plurality of color separations in the second user image.

8. The process as described in claim 6, wherein the first and second images are digital images and wherein the step of placing the first and second images in a superposed relationship is accomplished by a logical combination of the first and second images.

9. A process for generating an authenticable document, wherein an authentication image inserted therein is not readily visually perceptible, including:

means for generating a first halftone screen;

means for generating a second halftone screen, related and distinct from the first halftone screen, wherein the macro structure of the second halftone screen is identical to that of the first halftone screen and the micro structure of the second halftone screen is conjugate to that of the first halftone screen

means for generating a first user image using the first halftone screen and the second halftone screen, wherein a region is generated using the first halftone screen and a remaining region is generated using the second halftone screen;

means for generating a second user image using the first halftone screen whereby upon placing the first and second user images in a superposed relationship to allow viewing of both user images together, a positive correlation occurs between the two user images within the regions in which the first halftone screen is used in the first user image, and a negative correlation occurs between the two user images within the regions in which the second halftone screen is used in the first user image, so that the authentication image becomes visible in contrast between the positive correlation of the corresponding regions and the negative correlation of the remaining regions enabling authentication of the authenticable document; and

a negative correlation occurs between the two halftone screens in the first and second user images everywhere within the region in which the second halftone screen is a conjugate of the corresponding region of the first halftone screen, and where positive correlation occurs where the two screens are identical, so that the authentication image becomes visible in contrast between the negative correlation of the corresponding regions and the positive correlation of the remaining regions enabling authentication of the authenticable document.

10. The process as described in claim 9, wherein the authenticable document is a color document comprising plural color separations, and the first pattern is used in one of the plural color separations in the first user image, and the first and second

patterns are used together in one of the plurality of color separations in the second user image.

**11.** The process as described in claim 9, wherein the first and second images are digital images and wherein the step of placing the first and second images in a superposed relationship is accomplished by digital processing of the first and second images.

**12.** The process as described in claim 9, wherein both the first and second images are rendered on substrates and at least one of the first and second images is rendered on a substantially transparent substrate and wherein the step of placing the first and second images in a superposed relationship is accomplished by placing the transparent substrate over the other substrate in an aligned relationship.